TEXT-BOOKS OF CHEMICAL ANALYSIS.

(1) *A Systematic Course of Qualitative Chemical Analysis of Inorganic and Organic Substances, with Explanatory Notes.* By Prof. Henry W. Schimpf. Third edition, revised. Pp. ix + 187. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1917.) Price 7*s.* net.

(2) *Essentials of Volumetric Analysis: An Introduction to the Subject, Adapted to the Needs of Students of Pharmaceutical Chemistry.* By Prof. Henry W. Schimpf. Third edition, rewritten and enlarged. Pp. xiv + 366. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1917.) Price 7*s.* net.

(3) *An Advanced Course in Quantitative Analysis, with Explanatory Notes.* By Prof. Henry Fay. Pp. vi + 111. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1917.) Price 6*s.* net.

(1) THIS volume is intended especially for pharmaceutical students, and the author has borne in mind the fact that such students can devote but a relatively short time to the study of analytical chemistry. Hence the endeavour has been made to confine the work to those qualitative chemical reactions, both organic and inorganic, which it is considered essential for students of pharmacy to master. An ample course has been provided; but the book is frankly didactic rather than educative.

In carrying out the scheme, much use is made of "charts" and tables of procedure, not only for the analysis of mixtures, but also for examining simple salts. A useful feature is the plentiful employment of equations in explanation of the reactions: this is a matter on which the average student is often weak. Although the "organic" part of the work has been written in reference to the United States Pharmacopœia, it will be found quite serviceable by students in this country. The matter is both well arranged and well printed.

In a work of this character there seems to be no sufficient reason for including a section dealing with elementary chemistry (atoms, valency, symbols, salts, etc.). The sixteen pages devoted to it cannot take the place of an ordinary chemical text-book; and that being so, they might be more profitably devoted to analytical matters. It may be noted that, in the chart on p. 72, *sodium* metantimonate, instead of the potassium salt, is, by an oversight, shown as the reagent to be used in testing for sodium.

(2) Like the foregoing work, this volume is also designed for the use of pharmaceutical students. Hence, in addition to descriptions of the general principles of volumetric analysis, chapters are included which initiate the user into methods of dealing with medicinal substances. Such methods are, for instance, those used in the estimation of alkaloids volumetrically, and in the assaying of vegetable drugs and galenical preparations. With these may be mentioned the processes used for the determination of phenols, nitrites, sugars, and alcohol; assays of drugs, such as chloral and resorcinol, and the examination of oils, fats, and waxes. The chapters in question will be found to be excellent introductions to these parts of the subject.

The earlier chapters give good explanations of the general principles and practice of volumetric analysis. They are provided with numerous worked-out examples to explain the calculations involved.

Whilst, however, the book, on the whole, will be found convenient and useful, it would be improved here and there by a revision of the wording. Such sentences as "the sensitiveness of the indicators and its colour changes is ascribed to . . ." (p. 21) do not well express the author's meaning. The revision of proofs, too, might have been better done. Thus the statement that "oleomargarin requires about one mil of beef-fat" (p. 285) will be found rather cryptic by the student, until he realises that somehow or other "decinormal alkali" has been transformed into "beef-fat" during its passage through the press.

(3) Work of a rather advanced kind, suitable for students who have already gone through a good introductory course, is provided in this third volume. The subjects chosen are such as to afford experience in the methods used for assaying minerals and metals. The analysis of silicates is first dealt with, and this is followed by that of spathic iron ore, pyrites, and titanium iron ore. After a few more exercises, including the proximate analysis of coal, the student is taken on to the analysis of phosphor-bronze and the determination of the numerous substances present in various kinds of iron and steel. These examples will indicate the nature of the experimental work to be carried out. Except as regards coal, the estimations are concerned with inorganic substances only.

A notable feature of the book is Prof. Fay's explanatory notes, which will be found very helpful, as will also the original references provided. The methods of analysis used are such as would be employed in actual working practice, and the book can be cordially recommended to the notice of advanced students and their tutors.

THE VALUE OF A GARDEN.

A Garden Flora: Trees and Flowers Grown in the Gardens at Nymans. By L. Messel. 1890–1915. With illustrations by Alfred Parsons. Foreword by William Robinson. Notes by Muriel Messel. Pp. ix + 196. (London: *Country Life* Offices and George Newnes, Ltd.; New York: Charles Scribner's Sons, 1918.) Price 10*s.* 6*d.* net.

THE garden at Nymans, Sussex, is without doubt a particularly favoured spot. It rises to some 500 ft. above sea-level, and has a good loam soil overlying sandstone. As might be ex-

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pected from such a soil, the garden contains a wealth of rhododendrons and heaths and other interesting plants which only flourish where chalk is absent from the soil.

The remarkable list of the plants grown in the garden which the late Miss Messel has drawn up, to the memory of her father, Mr. L. Messel, the founder of the garden, is not only a splendid tribute to one who took the keenest interest in the cultivation of all that was rare and interesting, but also a most valuable work for all true garden-lovers.

The book enumerates all the plants grown at Nymans, a sufficiently remarkable collection to warrant its publication, and its value is much enhanced by the notes added by Miss Messel about the plants of more especial interest. Particulars as to the hardiness of numerous tender plants grown in the garden are also given, and all those that are half-hardy or doubtfully hardy, as well as those grown under glass, are specially marked.

The volume, which is beautifully printed on excellent paper, is enriched by the drawings of Mr. Alfred Parsons of plants which have flowered in the garden. So good are these that one would have welcomed some more from his accomplished pencil.

One reads through the lists of plants with envy, especially when the sizes of some of the more tender plants are noted. To find *Embothrium coccineum, Berberidopsis corallina, Abutilon vitifolium,* and four species of Acacia, among other tender plants, flowering out of doors so near London is remarkable.

One reason of Mr. Messel's success, with plants which are not usually considered hardy, was that he grew such plants with some protection during the winter, until they were large enough and strong enough to plant in the open. Had they been put out as small plants the failures would have been numerous.

In the appendix a list of the plants killed or severely damaged during the winter of 1916–17 is given. On the whole, the casualties are remarkably small, and it is particularly interesting to notice the somewhat unexpected survivors of the severe winter.

It is with great regret that we have to record the death of Miss Messel in December last from influenza.

OUR BOOKSHELF.

Electro-Analysis. By Prof. Edgar F. Smith. Sixth edition, revised and enlarged. Pp. xiv + 344. (Philadelphia: P. Blakiston's Son and Co., 1918.) Price 2.50 dollars net.

AT one time electro-analysis did not find much favour among chemists, because an analysis required too long a time, too complicated apparatus, and too much platinum. These objections have to a great extent been removed, largely through research by Prof. Edgar F. Smith, whose rapid precipitation of metals by the method of the rotating anode, introduced in 1901, has overcome the difficulty of time. Also of particular importance is his double mercury cup, the usefulness of which has been greatly enhanced by recent improvements described in the present edition of this book. The principle of this double cup is the same as that of the Castner-Kellner caustic soda plant. Remarkable success has attended the application of this method, not only to the complete analysis of single salts, such as sodium chloride, but also to the effecting of certain difficult separations, such as that of the alkali metals from one another.

Apart from a short chapter on "Theoretical Considerations," this book is entirely devoted to practical details, which are very fully given. Nevertheless, the author speaks with the confidence of one who has acquired his knowledge by actual experience, and has researched for more than forty years untrammelled by any electrochemical theory, whether of ions or of potentials.

The rareness among analysts of familiarity with electricity still remains a serious obstacle to progress in electro-analysis, and will remain so as long as electricity receives the little attention at present given to it by the chemist-in-training. If we have in view both speed and accuracy the best procedure in analysis is neither purely chemical nor purely electrical, but comprises a judicious blending of the two methods, and for guidance in electro-analysis every chemist should have a copy of the present standard work.

FRANCIS W. GRAY.

The Journal of a Disappointed Man. By W. N. P. Barbellion. With an introduction by H. G. Wells. Pp. x + 312. (London: Chatto and Windus, 1919.) Price 6*s.* net.

THERE have before now been clever young men who by their own efforts have conquered circumstance and won distinction in science, but, thank goodness, none of them has ventured to publish his high opinion of his own merits and his contempt for his neighbours, if not for the rest of mankind. Had he kept his own counsel, like the rest of us, Barbellion would doubtless have passed for a bright boy-naturalist, a student of zoology deserving all encouragement, and an amiable colleague when by hard work he won a post at the Natural History Museum. One would have recognised his brains, originality, and power of presentation, and one might have regretted to see another promising morphologist pinned for life to systematic entomology. His restless energy might have moulded to his own fashion that cramping environment, or might have raised him above it, had it not been for the slow and fatal disease against which he was struggling from the first. For that tragedy, for his courage and humour, and for his unquenched love of Nature, which here finds beautiful though rare expression, we can forgive his self-love, self-pity, and self-exposure, and place his journal on our shelf next that of Marie Bashkirtseff.

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